

MR2799-8/DIV
Serial Number: 10/700,586
Response to Official Action dated 18 October 2005

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REMARKS/ARGUMENTS

This case has been carefully reviewed and analyzed in view of the Final Official Action dated 19 May 2006. Responsive to the rejections made in the Office Action, Independent Claim 11 has been amended to clarify the combination of elements that form the invention of the subject Patent Application. Claims 1-10 were canceled and 14-17 were withdrawn by a previous amendment.

In the Final Official Action, Claims 11-13 and 18 – 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kaplan et al.(U.S. Patent 5,932,119) in view of Kabacoff et al. (U.S. Patent 5,080,752).

Prior to discussing the prior art relied upon by the Examiner, it is believed beneficial to first briefly describe certain aspects of the Applicant's inventive method in light of the amended claims, Specification and drawings. The present invention is a method and system for laser marking a gemstone. A laser pulse is generated with a pulse duration between .01 and 1 nanosecond. The laser pulse is then focused onto a surface of a gemstone for creating a marking zone where a portion of said gemstone is converted to graphite in said marking zone and the surface of the gemstone is displaced with respect to the focused laser pulse along three orthogonal axes.

Kaplan et al., the main reference cited by the Examiner, is directed to a laser marking system for machining gemstones which includes generating a laser pulse, focusing the laser pulse onto the surface of a gemstone, displacing the surface of the gemstone with respect to the focused laser pulse in order to micro-inscribe alpha/numeric

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characters on the surface of diamonds.

It is respectfully submitted that Kaplan et al. fails to suggest or disclose or among other things a laser pulse having a duration "between .01 to 1 nanosecond," as now clearly recited in Independent amended claim 11. In fact, Kaplan utilizes a Q-switched laser (See col. 19 lines 43-51), which is well known to exhibit larger pulse durations, typically between 5 and 100 nanoseconds for diamond marking.

Kabacoff does not overcome the deficiencies of Kaplan. Kabacoff like Kaplan, fails to disclose a laser pulse having a duration "between .01 to 1 nanosecond." Kabacoff discloses a process for producing a polycrystalline/diamond composite comprising diamond particles. Further, Kabacoff's lasers are disclosed as ranging from 1 to 20 nanoseconds (col. 3 lines 1-6). Pages 2-3 of the Specification as filed teach that the use of smaller laser pulse durations ranging between .01 to 1 nanosecond in diamond marking systems decrease the overall size and cost of the marking system. Additionally, any residual graphite remaining after marking diamond gemstones is minimized. Moreover, the optical and thermodynamic properties of Kabacoff's polycrystalline/diamond composites are dramatically different from those of the single crystal diamond gemstones used in the Applicant's invention necessitating longer pulse duration in comparison to Applicant's. Thus, Kabacoff teaches away from the present invention disclosing the use of lasers with pulse durations as much as 1000 times longer than that of the present invention.

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Further, Kabacoff fails to disclose “a laser pulse ... for creating a marking zone where a portion of said gemstone is converted to graphite in said marking zone.”

Kabacoff's discloses that his laser turns graphite into polycrystalline/diamond mixtures by completely melting the graphite (See col. 3 lines 1-6). Therefore, Kabacoff necessarily forecloses any notion of creating a “marking zone,” much less converting a portion of a diamond gemstone into graphite in the marking zone.

Thus, neither Kaplan et al. nor Kabacoff et al. disclose a laser pulse having duration “between .01 to 1 nanosecond,” or “a laser pulse ... for creating a marking zone where a portion of said gemstone is converted to graphite in said marking zone,” as now clearly recited in Amended Independent Claim 11.

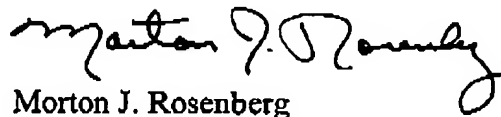
Therefore, as neither Kaplan et al nor Kabcoff disclose or suggest the unique combination of steps that form the invention of the subject Patent Application as now claimed, their combination cannot make obvious that invention. Thus, it is believed that dependent claims 12-13 and 18-20 are allowable for at least the same reasons as that given for now amended claim 11.

In view of the foregoing amendments and remarks, Applicant believes that the subject Patent Application is not in condition for allowance and such action is respectfully requested.

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No fee is believed to be due in connection with this Amendment. However, if there are any further charges associated with this filing, the Director of Patents and Trademarks is hereby authorized to charge Deposit Account #18-2011 for such charges.

Respectfully submitted,
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Morton J. Rosenberg